CLAIMS

WHAT IS CLAIMED IS:

1. A pharmaceutical composition, comprising:

a peptide or pharmaceutically acceptable salt thereof, whereby the peptide or pharmaceutically acceptable salt contains an amino acid sequence LLGDFFRKSKEKIGKEFKRIVQRIKDFLRNLVPRTES (LL-37); and a carrier.

2. A method of increasing angiogenesis, comprising administering a pharmaceutical composition containing a peptide or pharmaceutically acceptable salt thereof containing the amino acid sequence LLGDFFRKSKEKIGKEFKRIVQRIKDFLRNLVPRTES (LL-37).

3. A method of preventing or treating disease, comprising administering a therapeutically effective dose of a pharmaceutical composition containing a peptide or pharmaceutically acceptable salt thereof, whereby the peptide or pharmaceutically acceptable salt contains an amino acid sequence LLGDFFRKSKEKIGKEFKRIVQRIKDFLRNLVPRTES (LL-37).

4. The method of claim 3, whereby the disease is caused by or results in reduced blood flow, reduced level of angiogenesis, or reduced level of arteriogenesis.

5. The method of claim 3, whereby the disease is atherosclerosis, coronary heart disease, stroke, arterial occlusive disease, or an ulcer.

6. A method of treating a wound, comprising administering a therapeutically effective dose of a pharmaceutical composition containing a peptide or pharmaceutically acceptable salt thereof, whereby the peptide or pharmaceutically acceptable salt contains an amino acid sequence LLGDFFRKSKEKIGKEFKRIVQRIKDFLRNLVPRTES (LL-37).

7. The method of claim 6, whereby the wound is an infected wound.

8. The method of claim 6, whereby the wound is a non-infected wound.

9. A method of decreasing the level of angiogenesis, comprising administering an agent that inhibits the biological activity of LL-37.

10. The method of claim 9, whereby the agent performs an action selected from the group consisting of blocking an interaction between LL-37 and an LL-37 receptor molecule, blocking an intracellular signal, blocking an intracellular signal cascade mediated by an LL-37 specific receptor, and blocking the growth of arteries.

11. The method of claim 10, whereby the LL-37 receptor molecule is FPRL1-receptor.

12. The method of claim 10, whereby the agent which blocks an interaction of LL-37 is an anti-LL-37 antibody, an anti-LL37-receptor antibody; a non-stimulatory form of LL-37, or a soluble form of a LL37-receptor.

13. The method of claim 9 whereby the agent is selected from the group consisting of a(n) antibody, polypeptide, peptide, nucleic acid, small organic compound, ligand, hormone, peptide nucleic acid, and peptidomimemetic.

14. A method of decreasing tumor size, comprising administering a therapeutically effective dose of an agent that inhibits the biological activity of LL-37.

15. The method of claim 14, whereby the LL-37 receptor molecule is FPRL1-receptor.

16. The method of claim 14, whereby the agent which blocks an interaction of LL-37 is selected from the group consisting of anti-LL-37 antibody, anti-LL37-receptor antibody; non-stimulatory form of LL-37, and a soluble form of a LL37-receptor.

17. The method of claim 14 whereby the agent is selected from the group consisting of a(n) antibody, polypeptide, peptide, nucleic acid, small organic compound, ligand, hormone, peptide nucleic acid, and peptidomimemetic.

18. The method of claim 14, whereby the tumor is selected form the group consisting of carcinoma or sarcoma including cancer of the bile duct, brain, breast, colon, stomach, male and female reproductive organs, lung and airways, skin, gallbladder, liver, nasopharynx, nerve cells, kidney, prostate, glands and Kaposi's sarcoma.

19. A method of altering the specificity of LL-37 contained in a compound, comprising:
identifying binding sites of LL-37 and an LL-37 specific receptor;
model the binding site of LL-37 and the receptor using molecular modeling; and
modifying the compound to increase the specificity found in the modeling step.

20. The method of claim 19, whereby the identifying step is performed by site directed mutagenesis or chimeric protein studies.